DOCUMENT RESUME

ED 476 996 IR 021 724

AUTHOR	Doughty, Venita; Rusnak, Barbara; Dunlap, Joanna; Shank, Patti; Parrish, Patrick; Wilson, Brent
TITLE	Trends for Distance Education: Getting the Big Picture for the Coming Decade.
PUB DATE	2002-06-00
NOTE	7p.; In: ED-MEDIA 2002 World Conference on Educational Multimedia, Hypermedia & Telecommunications. Proceedings (14th, Denver, Colorado, June 24-29, 2002); see IR 021 687.
AVAILABLE FROM	Association for the Advancement of Computing in Education (AACE), P.O. Box 3728, Norfolk, VA 23514. Tel: 757-623-7588; e-mail: info@aace.org; Web site: http://www.aace.org/DL/.
PUB TYPE	Reports - Evaluative (142) -- Speeches/Meeting Papers (150)
EDRS PRICE	EDRS Price MF01/PC01 Plus Postage.
DESCRIPTORS	Computer Uses in Education; *Distance Education; Educational Change; *Educational Development; Educational Philosophy; *Educational Practices; *Educational Trends; *Futures (of Society); Technological Advancement; Technology Integration; *Trend Analysis

ABSTRACT

A number of educational and societal trends are analyzed for their potential impact on the practice of distance education. The trends reflect the various ideologies and values currently found within professional communities and publics at large. How the various trends push and pull in different directions, and how they may lead to alternative futures for distance education are the subject of the paper. Trends are outlined for the following: Technologizing of School Systems; Learner- and User-Centered Philosophies; Moves to Streamline and Automate Instructional Design; The Digital Shift: Advances in Information Technologies; Global Marketplace; and Radical Forces Inspired by Global Connectivity. (Contains 24 references.) (AEF)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 476 996

Trends for Distance Education: Getting the Big Picture for the Coming Decade [1]

Venita Doughty
Denver Seminary
Venita.Doughty@denverseminary.edu

Barbara Rusnak
University of Colorado at Denver
Barbara_Rusnak@ceo.cudenver.edu

Joanna Dunlap
University of Colorado at Denver
Joni_Dunlap@ceo.cudenver.edu

Patti Shank
Learning Peaks LLC/Online Learning Magazine
patti@learningpeaks.com

Patrick Parrish
COMET/UCAR
pparrish@comet.ucar.edu

Brent Wilson
University of Colorado at Denver
Brent.Wilson@cudenver.edu

Abstract: A number of educational and societal trends are analyzed for their potential impact on the practice of distance education. The trends reflect the various ideologies and values currently found within professional communities and publics at large. How the various trends push and pull in different directions, and how they may lead to alternative futures for distance education—These are the subject of the paper.

Distance education has been described as a disruptive technology—an innovation that, while initially posing no threat to established institutions, over time challenges conventional practices and contributes to new ways of thinking (Archer, Garrison, & Anderson, 1999). I agree with this assessment. Distance education has already become more than an alternative form of delivery. It has shaken up the educational establishment, especially at higher education and corporate levels. Precisely because of this success, though, assessing potential at midstream can be a challenge. At times like these, instructional designers and providers can benefit enormously by stepping back, reviewing broad trends, and forecasting likely scenarios based on those trends. That is the purpose of this paper. A number of current trends are outlined and their likely impact on education considered. Then some brief pointers toward the future are presented.

Observers of distance education can point to a number of discernible trends affecting practice over the past several years. Trends do not determine the future, but they can provide a basis for present action and an understanding of possible futures. The trends discussed below are pulling in different directions—some fostering change, others reinforcing the status quo; some using technology in a controlling way, others using technology to empower individuals.

Technologizing of School Systems

School systems, particularly American K12 public schools, are facing pressures to modernize and "technologize" their processes by establishing more predictable outputs and methods (Tyack & Cuban, 1995). Although American public schools are the immediate point of discussion for this section, the principles extend to any schooling or educational system.

Standardized competencies. The standards movement has resulted in a common set of learning outcomes, presented in quasi-behavioral language, but at a fairly high level of generality to accommodate different teaching methods.

System-side assessments and accountability. Standardized assessments are part of an overall move to make schools more accountable to the public or to the government. Test scores are thus indicators of tax dollars and government resources being well-spent.

IR021724

BEST COPY AVAILABLE

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

G.H. Marks

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Incentivization of funding. Increasingly, operational funds are being tied to compliance with specific mandates and regulations. These mandates are made at levels beyond individual schools, intended to bring schools into line with desired teaching and assessment practices.

Regulated processes and methods. With increased emphasis on high-stakes testing, teachers are being asked to fit their teaching methods more closely to the larger system of goals and assessments. Often, methods are established and prescribed by schools, districts, and even states, leaving less room for professional judgment and variations in teaching style.

Alignment of outcomes, assessments, and methods. In a well-coordinated schooling system, an alignment exists between processes and outputs—in particular, between standardized outcomes, assessment measures, and acceptable teaching methods.

De-professionalizing the teacher's role. Tighter alignment of processes and outputs has a definite impact on the teacher's role. As suggested above, the teacher often assumes a "technician's" role of implementing prescribed rules, as opposed to a professional's role of exercising judgment.

Learner- and User-Centered Philosophies

At the same time schools are moving toward efficiency and control, the mood among many educators is definitely learner-centered. The constructivist movement in education stresses individual and collaborative construction of meaning. While many teachers wish they could teach in more learner-centered ways, the system can make it difficult. Teachers and trainers thus face a certain tension between efficiency and control on the one hand, and learner-centered flexibility on the other.

Convenient, anytime/anywhere access. Instead of students going to class, learning is coming to the student—in the workplace or at home. Just-in-time, just-in-place learning resources are increasingly available to learners in their normal living settings.

Constructivism. Constructivist teaching strategies give students complex and engaging projects and tasks to perform, with scaffolding and support from colleagues or a teacher/facilitator. Learning happens via meaningful experiences and direct encounters. Examples include guided inquiry activities such as Webquests, or problem-based learning cases.

Field-based and informal learning. Informal learning happens by virtue of participation in some other valued activity, e.g., work or play. Field-based learning refers to semi-structured activities such as internships, practicum experiences, expeditions and trips, etc.

High-touch connectivity. Many technology innovators maintain a dual focus in their dissemination efforts—providing advanced information tools coupled with high levels of personal support and connectivity among individuals (Naisbitt, 1982; Spitzer, 2001). The commitment to both high-tech and high-touch suggests a need to make tools people-centered rather than the reverse (Norman, 1993).

How does distance education fit within these conflicting forces of standardization versus learner-centered values? Ironically, distance education can be seen to support both movements. A well-conceived distance education program can fit squarely within a strictly controlled standards-based curriculum. At the same time, some aspects of the distance learning experience are completely learner-centered, especially the access and convenience afforded students.

Moves to Streamline and Automate Instructional Design

In this section several trends are outlined that relate to making instructional-design processes more efficient and effective through a process of streamlining or automation of tools and processes.

Standardized taxonomies for learning outcomes and instructional strategies. A basic precept of instructional design is known as the "conditions-of-learning" assumption (Ragan & Smith, 1996). Before producing instruction, you determine what you need to teach, as well as your audience and situation. Then and only then can good

instructional strategies be determined. According to this view, rules connecting goals with instructional strategies become essential to the systematic practice of instructional design.

Data-driven generation of rule-based instruction. An automated version of this line of thinking seeks to make instructional development largely a data-driven activity. Automated instructional design is an ambitious concept: Just plug in data concerning learning outcomes, learners, and situation, and the rule system spits out—not only a set of recommended strategies—but draft instructional materials. While research on automating instruction has continued over two decades, the agenda is still in its infancy, and may prove increasingly viable in coming years.

More flexible, adaptable authoring tools. Powerful authoring tools break from linear processes and allow late and iterative changes in design, more in keeping with natural design thinking and envisioning. Examples include 3-D modeling programs that allow for various uses once the model has been created; or authoring tools that allow prototyping and creation of dummy interfaces, to test out concepts at early stages before investing in full-design development.

More modular, re-usable design. The learning-objects movement is about reusing content to make efficiency gains in the instructional development process. Because digital content is "non-rival" in nature (i.e., copies of equal quality can easily be made from originals), reusability for various purposes, media, and occasions become an inviting possibility (Wiley, 2002).

The Digital Shift: Advances in Information Technologies

After their initial emancipating impact, new technologies eventually come to constrain our thinking and actions, especially after heavy investment in their use. Advances in information technologies over the last twenty years are so profound that they are affecting every area of our professional lives. I term this condition the "digital shift" because, as we convert our thinking, knowledge, and communication to digital and informational form, a whole new set of possibilities opens up (Brown, 2000; Brown & Duguid, 1996).

Digitized information is traceable and *archivable*. Exchanges and interactions are more easily captured, at least on a digital level. Digital databases are *searchable* to a degree that we can often retrieve needed resources when solving problems in real time. Because of their non-rival nature, digital resources are *replicable* in that they can be copied and distributed an infinite number of times at zero or extremely low cost. Using webs to *link via hypertext* interconnecting information has become commonplace in the problem-solving practices of information workers. Accompanying digital information is a stronger suite of tools: online communication tools will increasingly allow higher resolution, more modalities, more choice, and more fidelity to everyday encounters. These, along with more powerful representation tools, are leading to virtual worlds that allow for increasingly rich experience and interaction.

Global Marketplace

In recent years, economies worldwide have moved toward greater linkages and interdependencies. This move is called the global economy or the global marketplace (see also Collis & Gommer, 2001a and Collis & Gommer, 2001b for a helpful analysis on this general issue).

Economies of scale. By virtue of the Web and the shift to online learning, markets for learning resources have shifted from local to global. Thus a school in Australia may offer a course that attracts students from all over the world. A portal or website may compete against an office of student services within a community college. These shifts in markets and audiences create new economies of scale—allowing larger investment and larger outreach—but they can also threaten locally developed providers.

Globally distributed labor pool. A company based out of India may hire an experienced PhD at $3/hour to facilitate a graduate-level computer science course. This, in turn, may force a competitive response by a local school or learning-resource provider. By simple virtue of the Web, salary scales and hiring practices for online resource providers are starting to become more globalized

Disaggregation of products and services. It can be hard to put a price tag on residential school experiences. What is a Harvard MBA worth, and where does the value lie? Many graduates would place great value on non-traditional outcomes, e.g., the network of friends and contacts; the exposure to a company's work practices via an

internship; the rite-of-passage and developmental roles of schooling; the opportunity to take personal risks and test oneself. Online learning providers will need to somehow differentiate the valued outcomes of a schooling experience.

Commoditization of instruction. As suggested earlier, instruction can be seen either as a mass-produced product or as a unique experience. Because online learning resources require more up-front development than typical classroom experiences, and because online instruction is still seen as an entrepreneurial enterprise, there is a tendency to see online instruction as a commodity. Once investment has been made in the product, providers often want to distribute that product as far as the market will allow. This could also be called a shift from a craft to an industrial model of production and delivery. A view of instruction as commodity, of course, is compatible with viewing education in input-output terms.

Mixing of commerce and education. Many enthusiasts are disheartened at the commercialization of the Web, but it was a predictable effect coincident with increasing choice and individual control. A similar tendency is seen in schools as greater choices and perspectives are accommodated through charter and private schools. Commercial investment can provide the needed stimulus to innovation and development, but it can also reduce innovation and variation, especially small-niche perspectives at the fringes. Commercial appropriation of learning can result in some confusion through blurring of boundaries between consumption and education, between entertainment and learning. In an open market, where satisfaction of desire plays a critical role, learning outcomes may suffer from neglect.

Radical Forces Inspired by Global Connectivity

Web as democratizing, emancipating, empowering force. Early literature about the Internet was infused with optimism and idealism about universal sharing and access. The Web indeed can be an empowering force that gives information access to users who are physically remote from resources (Ryder, 1995). At the same time, the Web, like so many other tools, reflects our own values and ideas. A divide still exists between the privileged and the disenfranchised, but the rules have changed somewhat. Principal barriers now include lack of access and lack of cultural or personal fit with the technology. Age can even be a barrier to empowerment, with younger people tending to have more time and familiarity with technology than older generations.

Open source. The commercial model of technology advancement, exemplified in the software industry by Microsoft, is being challenged right now by the open source movement. Linux, an operating system whose source code is open for the world to see and costs nothing to download and use, has become a major movement in the software development world. Open-source advocates are trying to create a world where software is freely available and a living is made through continuing relationships of service and support. Open-source ideas may be applied to online learning and education: Challenge commercial ownership by making resources freely available, for example, on the Web. If communities of practice can be organized around openly available tools and resources, then the system can become self-sustaining and reinforcing to participants (Schrage, 2000).

Self-publishing and knowledge sharing. Self-publishing is to knowledge management as open source is to Microsoft—an alternative to a hierarchically controlled system. Instead of fixed search categories and a company-designed form, end users themselves can publish solutions and locally valued resources. The Web epitomizes this growing trend, to the occasional chagrin of copyright owners and librarians (Ryder & Wilson, 1997).

Peer-to-peer networking. The Napster phenomenon taught us that downloading from central servers is not the only way to perpetuate an online enterprise. Peer-to-peer networking refers to individual users sharing resources by opening up their hard drives to each other. The core concept is even more radical than Napster's, because once out of the bag and in the hands of end users, true peer-to-peer usage cannot be controlled. In this way peer-to-peer networking constitutes a classic form of self-organizing system, using the technology to bypass every form of central control.

Self-organized learning- and performance-support groups. Peer-to-peer connectivity is the extreme end of self-organizing on the Web, but there are other forms. Interest groups, listservs, support groups of all kinds—Each of these is a self-organizing system that draws on distributed energy and participation for its survival. Slashdot.org is a primary example (Wiley & Edwards, 2002).

Threats to credentialing, degree-granting institutions. In the last decade, competency-based approaches are increasingly offered as an alternative to seat-time approaches for credentialing institutions, thanks largely to growth in online and self-directed learning. For-profit outreach institutions like the University of Phoenix, once ridiculed for giving credit for "life experience," continue to gain market share against residential institutions. In spite of reliability problems, professional portfolios are increasingly used for competency demonstration and evaluation. Online learning, where seat time loses much of its meaning, continues to improve its services and learning outcomes, along with market share. These "disruptive technologies" and accompanying competency-based tools are truly disrupting the status quo.

Global education as an alternative to a national curriculum. Global education refers to a new philosophy of learning that seeks to create responsible citizens of the world. Transcending national interests, the global education curriculum takes broadly based positions on issues of non-violence and conflict resolution; sustainable growth policies; treatment of rich and poor; and protection of the global environment (McEneaney, Kolker, & Ustinova, 1998).

Reflections

How do these various trends add up? I hope the reader engages in some reflection and conversation about that question. What follows is my best effort at generalizing upon the trends. Rather than paint a specific scenario, I highlight a few principles suggesting to how the trends may combine.

The trends keep marching on. Each of the trends listed above will continue to play a role in future developments of education and training, where distance technologies will play an expanding role. The trends may compete with one another, or sometimes cancel each other out. But they all represent significant aspects of the problem space within which distance education of the future will take shape.

Open systems trump closed ones. This is my way of saying, learners and communities will find a way to appropriate emerging tools and technologies, rather than the reverse. I have a bias that says that open systems (self-directed learners, self-organizing groups of learners and workers) constitute the most vital and thriving unit for understanding human actions and choices (*cf.* Hill, 1999). Process efficiencies and mass-produced tutorials can be appropriated and put into service by these learners and groups, and that is good. Where a group can appropriate a tool or technology and use it to learn from, let it do so. Where the technology breaks down, the group will adapt and make do. This is not a Utopian faith in the goodness of people; rather, it is an acknowledgement of the power and priority of groups that identify us and guide our behavior. Schools as collectivized learning institutions will not go away. Teachers or guides, responsible for the growth of novices, will not go away. Collective learning in real time will not go away. These practices are in place, not because we lack alternatives, but because we are social beings who invest considerable time and resources toward local interactions and support. I am confident that the same groups—schools, classrooms, families, workgroups, professional organizations—will find ways for distance-education resources to work in their service.

Technologies are still reflections of us. Through technologies and new ideas, we are always in the process of re-inventing ourselves. Technologies serve as mirrors of our values and aspirations, as well as our weaknesses and intractable problems. This truth about technologies underscores the importance of subjecting our plans to continuing scrutiny. Whenever possible, we want our technologies to reflect our *best* selves and our highest ambitions.

Technology and ideas will continue to co-evolve together. Historians of technology tell us that a technology, often based on the best thinking available, in turn stimulates new thinking and new possibilities. This is certainly true of the Web and networked information systems. A huge spike of promising ideas, models, and R &D efforts has accompanied the new technology. When these new efforts are seen as artifacts themselves, we see how one technology prompts the development of another, and how the cycle repeats itself through new iterations of technology, design, theorizing, and practice. Thus we can be sure that, as technology continues its onward march, new models and ideas will surely follow—and in some cases, precede the technology itself. As John Dewey said more than seventy years ago:

> Many are the conditions which must be fulfilled if the Great Society is to become a Great Community... The highest and most difficult kind of inquiry and a subtle, delicate, vivid and

> responsive art of communication must take possession of the physical machinery of transmission and circulation and breath life into it. When the machine age has thus perfected its machinery, it will be a means of life and not its despotic master. (Dewey, 1954/27)

References

Archer, W., Garrison, D. R., & Anderson, T. (1999). Adopting disruptive technologies in traditional universities: Continuing education as an incubator for innovation. *DEOSNews*, 9 (11). Available: http://www.ed.psu.edu/acsde/deosarchives.html

Brown, J. S. (2000, February). Works in progress. Online: http://www.parc.xerox.com/ops/members/brown/index.html

Brown, J. S., & Duguid, P. (1996, July/August). Universities in the Digital Age. *Change*, 10.

Carr, A. A. (1997). User-design in the creation of human learning systems. *Educational Technology Research & Development*, 45 (3), 5-22.

Cave, D. (2001, July 10). Microsoft to schools: Give us your lunch money! Online: http://www.salon.com/tech/feature/2001/07/10/microsoft_school/print.html

Collis, B., & Gommer, L. (2001). Stretching the Mold or a New Economy? Part I: Scenarios for the university in 2005. *Educational Technology*, 41 (3), 5-18.

Collis, B., & Gommer, L. (2001). Stretching the Mold or a New Economy: Part 2: Realizing the scenarios for the university in 2005. *Educational Technology*, 41 (4), 5-14.

Dewey, J. (1954/27). *The public and its problems*. Athens OH: Ohio University Press. Chapter 5: Search for the Great Community. Also found in J. A. Boydston (Ed.), *The collected works of John Dewey, 1882 - 1953, Later works*, 2, 325-350.

Hebb, D. O. (1949). *The organization of behavior: A neuropsychological theory*. New York: Wiley.

Hill, J. R. (1999). A conceptual framework for understanding information seeking in open-ended information systems. *Educational Technology Research and Development*, 47 (1), 5-27.

Irving, J. (2001, July). SlashLearn: Discussion and debate for instructional technologists. Online: http://www.beota.com/ilt/dwarticle.htm

Law, J., & Hetherington, K. (n. d.). *Materialities, spacialities, globalities*. Online: http://www.comp.lancs.ac.uk/sociology/soc029jl.html

McEneaney, J. E., Kolker, J. M., & Ustinova, H. S. (1998, April). *Technology-based Global Education and its implications for school/university partnerships*. Paper presented at the meeting of the American Educational Research Association, San Diego. Online: http://www.iusb.edu/~edud/global/pub2.htm

Naisbitt, J. (1982). *Megatrends: The new directions transforming our lives*. New York: Warner.

Norman, D. A. (1993). *Things that make us smart*. Reading MA: Addison-Wesley.

Ragan, T., & Smith, P. (1996). Conditions-based models for designing instruction. In D. H. Jonassen (Ed.), *Handbook of research for educational communications and technology*. New York: Macmillan.

Ryder, M. (2001, July). *Luddism and the neo-luddite reaction*. Online: http://carbon.cudenver.edu/~mryder/itc_data/luddite.html

Ryder, M. (1995, November). *Production and consumption of meaning. The interplay between subject and object in open hypertext representation*. Paper presented at the meeting, Semiotics as a Bridge between the Humanities and the Sciences, Victoria College, University of Toronto. Online: http://carbon.cudenver.edu/~mryder/semiotics_95.html

Ryder, M., & Wilson, B. (1997, March). *From center to periphery: Shifting agency in complex technical environments*. Paper presented at the meeting of the American Educational Research Association, Chicago. Online: http://carbon.cudenver.edu/~mryder/coss.html

Schrage, M. (2000, August). The debriefing: John Seely Brown. Online: http://www.wired.com/wired/archive/8.08/brown_pr.html

Spitzer, D. R. (2001). Don't forget the high-touch with the high-tech in distance learning. *Educational Technology*, 41 (2), 51-55.

Tyack, D., & Cuban, L. (1995). *Tinkering toward Utopia: A century of public school reform*. Cambridge MA: Harvard University Press.

Wiley, D. A. (Ed.). (2002). *The instructional use of learning objects*. Bloomington IN: Agency for Instructional Technology and the Association for Educational Communications and Technology. Online: http://reusability.org/read/

Wiley, D. A., & Edwards, E. K. (2002). Online self-organizing social systems: The decentralized future of online learning. *Quarterly Review of Distance Education*, in press.

---

[1] An expanded version of this paper is available at: http://carbon.cudenver.edu/~bwilson/TrendsAndFutures.html and will be published in an upcoming issue of the *Quarterly Review of Distance Education*. The APA citation of that longer paper will be: Wilson, B. G. (2002). Trends and futures of education: Implications for distance education. *Quarterly Review of Distance Education*, 3 (1), 65-77.

BEST COPY AVAILABLE

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

NOTICE

Reproduction Basis

X	This document is covered by a signed "Reproduction Release (Blanket)" form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.
	This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").